

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

REC'D 23 AUG 2005

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Applicant's or agent's file reference w 5039-019 lb	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/EP2004/002188	International filing date (day/month/year) 04.03.2004	Priority date (day/month/year) 26.04.2003
International Patent Classification (IPC) or national classification and IPC H01Q1/22, H01Q1/40, H01Q1/42		
Applicant SONY ERICSSON MOBILE COMMUNICATIONS AB ET AL.		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 3 sheets, as follows:</p> <ul style="list-style-type: none"> <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application

Date of submission of the demand 25.02.2005	Date of completion of this report 24.08.2005
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Van Dooren, G Telephone No. +31 70 340-2952



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Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-10 as originally filed

Claims, Numbers

1-18 received on 28.02.2005 with letter of 24.02.2005

Drawings, Sheets

1/3-3/3 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):
4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - the description, pages
 - the claims, Nos. 1
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4-6,10,12,16
	No: Claims	1-3,7-9,11,13,14,17,18
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

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Re Item I

Basis of the report

1. The amendments filed with the International Bureau under Article 19(1) PCT introduce subject matter which extends beyond the content of the application as filed, contrary to the requirements of Article 19(2) PCT. The amendments to independent claim 1 are the following:
 - said housing comprises a protruding member having an irregular shape; and
 - in that the geometric shape of the support element (111) is conformed to the irregular shape of the protruding member (11, 20, 30) of said housing.

The generalised formulation '*irregular shape*' broadens the scope of the claim, as it encompasses any irregular shape, while in the description only two embodiments are shown, namely an L-shaped and a corrugated one. It is further doubtful, what actually '*irregular*' means in this context, and whether the embodiments shown in figures 2b and 2c actually qualify to be denominated '*irregular*'.

- 1.1 Examination will proceed on basis of the independent claim 1 being interpreted as '*regular shape*' **exclusively** meaning '*L-shaped*' or corrugated, cf. dependent claim 2.

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. The following documents are referred to in this communication:
 - D3: US-B-6 456 245 (CRAWFORD JAMES A) 24 September 2002 (2002-09-24)
 - D4: US-B-6 518 929 (Mobilian Corp.) 11 February 2003 (2003-02-11)
 - D5: US-B-5 913 174 (Proxim Inc.) 15 June 1999 (1999-06-15)
 - D6: EP 1 056 152 A (Nokia Mobile Phones LTD) 29 November 2000 (2000-11-29)

- 1.1 The documents D4-D6 were not cited in the international search report.

2. The present application does not meet the criteria of Article 33(1) PCT, because the

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subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

2.1 Document D4 discloses (the references in parenthesis applying to this document): A card device (cf. fig. 16, col. 7, l. 18-20) for insertion in a computer, comprising a housing (col. 7, l.58-65: protective sealant), at least a first antenna (col. 7, l.58-65: antenna structure) arranged on a support element (col. 7, l.58-65: substrate material); and antenna output means (cf. fig. 2) wherein

- said housing comprises a protruding member having an irregular shape (cf. fig. 15, 16); and
- the geometric shape of the support element is conformed to the irregular shape of the protruding member of said housing.

The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).

3. Dependent claims 2-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT) for the following reasons:

- the subject matter of dependent claims 2,3,7-9,11,13,14,17,18 is further disclosed in D4; and
- the subject matter of dependent claims 4-6,10,12,16 is considered to be obvious over the disclosure present in D4, since the subject matter contained in these claims is considered to be mere design options, not involving any inventive skill; and
- the subject matter of dependent claim 15 is considered to be obvious over the disclosure present in D4, in the light of the disclosure in D3 in solving the problem of how to improve the reception characteristics for the combination of the first and second antenna.

4. For the sake of completeness it is mentioned that in view of document D5, the independent claim is considered not to be inventive (Article 33(3) PCT).

4.1 Document D5 discloses (the references in parenthesis applying to this document): a card device (cf. fig. 1) for insertion in a computer, comprising a housing (1,2), at least

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a first antenna (63) arranged on a support element (57) ; and antenna output means (7) wherein

- said housing comprises a protruding member (1) having a shape; and
- the geometric shape of the support element (57) is conformed to the shape of the protruding member (1) of said housing.

4.2 The subject matter of claim 1 differs from this known card device in that the shape of the protruding member is irregular (cf. point 2, 2.1).

4.3 The use a protruding member with a irregular shape is known in the art, and does not result in any surprising effect, see *for example*, document D4, figures 15 and 16, and D6, figures 2 and 3.

Consequently, independent claim 1 is considered not to be inventive,

5. Dependent claims 2-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT) for the following reasons:

- the subject matter of dependent claims 2-9,12,16,18 is further disclosed in D5; and
- the subject matter of dependent claims 10,11,13-14,17 is considered to be obvious over the disclosure present in D5, since the subject matter contained in these claims is considered to be mere design options, not involving any inventive skill; and
- the subject matter of dependent claim 15 is considered to be obvious over the disclosure present in D5, in the light of the disclosure in D3 in solving the problem of how to improve the reception characteristics for the combination of the first and second antenna.

Re Item VIII

Certain observations on the international application

1. The applicant has stated that the term '*irregular shape*' excludes the embodiment

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shown in figure 2a of the application, however, in the description this specific embodiment is still retained, which causes a lack of clarity of the claims (Article 6 PCT).

2. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in documents D3-D6 is not mentioned in the description, nor are these documents identified therein.

* * * * *

CLAIMS

1. A card device (1) for insertion in a computer, comprising a housing (10), at least a first antenna (110) arranged on a support element (111); and antenna output means (114);

5 characterized in that

said housing comprises a protruding member having an irregular shape; and in that

10 the geometric shape of the support element (111) is conformed to the irregular shape of the protruding member (11, 20, 30) of said housing.

15 2. The device according to claim 1, wherein said protruding member has an irregular shape selected from the group comprising L-shaped and corrugated.

3. The device according to claim 1 or 2, wherein the protruding member has an angle relative to the housing in the range of +/- 90 degrees.

20 4. The device according to claim 1, 2 or 3, wherein the protruding member is made of a rubber material.

25 5. The device according to any of the proceeding claims, wherein said antenna output means (114) is directly connected to circuitry arranged in said housing (10).

30 6. The device according to claim 5, wherein said circuitry is provided on a printed circuit board (130) in said housing (10).

35 7. The device according to any of the proceeding claims, wherein the geometric shape of the support element (111) is conformed to the geometric shape of an inner surface of the protruding member (11, 20, 30).

8. The device according to any of the proceeding claims, wherein the first antenna (110) is formed as printed traces of conductive material on said support element (111).
5

9. The device according to any of the proceeding claims, wherein the support element (111) comprises a flexible dielectric film.

10 10. The device according to any of claims 1 to 8, wherein the support element (111) is an inner surface of said protruding member (11, 20, 30).

15 11. The device according to any of the proceeding claims, wherein the first antenna (110) is a multiple branch antenna.

20 12. The device according to any of the proceeding claims, wherein the first antenna (110) is adapted for communication in a GSM frequency band, a DCS frequency band, a PCS frequency band, and/or a UMTS frequency band.

25 13. The device according to any of the proceeding claims, further comprising at least a second antenna (120a-b) arranged on said support element (111).

30 14. The device according to claim 13, wherein the second antenna (110, 120a-b) is formed as printed traces of conductive material on said support element (111).

15. The device according to claim 13 or 14, wherein the second antenna is a diversity antenna having first and second monopole antenna branches (120a-b) provided with a

mutual distance of at least a quarter of a wave length of the signal for which the second antenna is adapted.

16. The device according to claim 13, 14 or 15,
5 wherein the second antenna (120a-b) is adapted for communication in a W-LAN frequency band.

17. The device according to any of claims 13-16, wherein said first antenna is tuned to a predetermined 10 first frequency and the second antenna is tuned to a predetermined second frequency.

18. Use of a device according to any of the proceeding claims in a computer for providing wireless data 15 communication.